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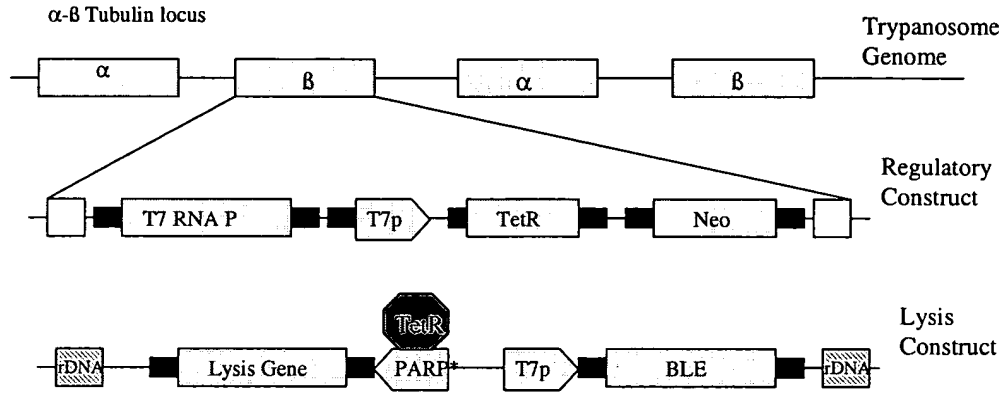
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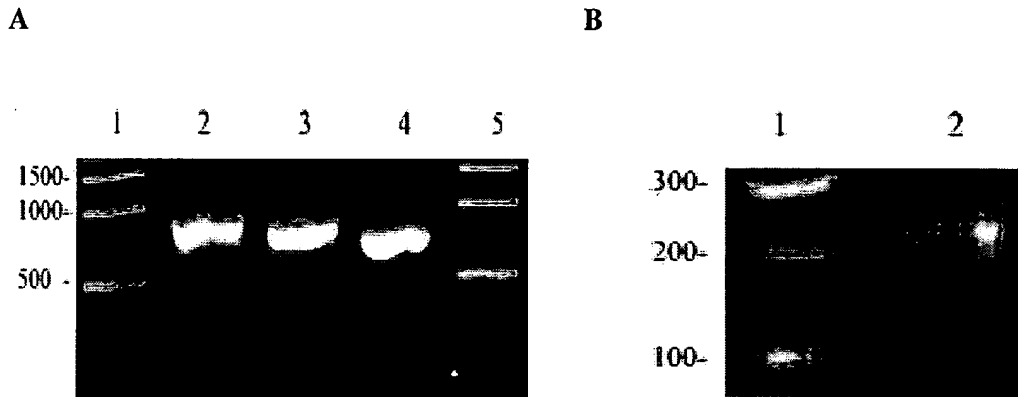


**REPLACEMENT SHEET**

Title: SACROMASTIGOPHORIC THERAPEUTIC AGENT DELIVERY SYSTEM  
Serial No. 10/735,203  
Applicant: Lawrence W. Cosenza  
Atty. Docket: DSI-10402/22  
Applicant: Lawrence W. Cosenza  
Attorney: Avery N. Goldstein (248) 647-6000



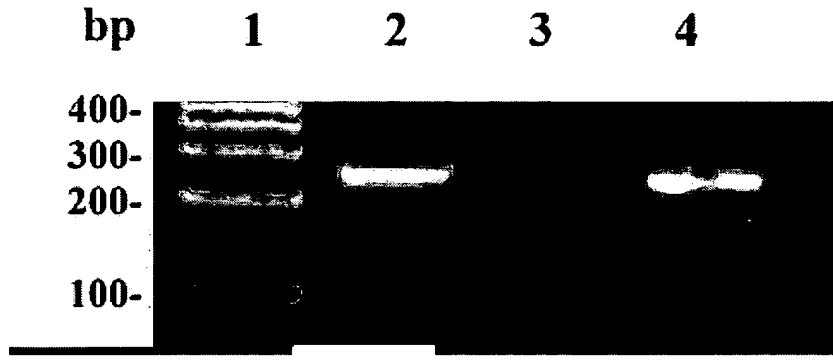
**Figure 1**



**Figure 2**

**REPLACEMENT SHEET**

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**Figure 3**

```

promVP4 1 -----ACCGAAATTAATACGACTCACTATAGGGGAA
promVP3 1 -----ATAGCATG-GTACC.....
           (KpnI)
promVP2 1 -----ATATTAGGCGCGCC.....G.....
           (AscI)
promVP1 1 AATTATTTCGAATTAGCAAGAAGATATTGT.....
           (NspV) L A R R Y C
promVP4 32 TTGTGAGCGGATAACAATTCCTCCGGAGTTAATCCGGGACCTTTAATTCAACCCAACACAA
promVP3 45 .....
promVP2 46 .....
promVP1 61 .....
promVP4 92 TATATTATAGTTAAATAAGAATTATTATCAAATCATTGTATATTAATTAAAATACTATA
promVP3 105 .....
promVP2 106 .....
promVP1 121 .....
promVP4 152 CTGTAAATTACATTTTATTTACAATCAAAGGAGATAT-AC-----
promVP3 165 .....T..GCTAGCTACCTACCTTCGAA
(NheI)   (NspV)
promVP2 166 .....GGCGCCTATAAAATCTGCAGA
           (NarI)   (PstI)
promVP1 181 .....A--GACTAGTAATAAGCGGCCGC
(SpeI)   (NotI)
promVP4 -----
promVP3 225 CTAGTATT
promVP2 225 TTAAT---
promVP1 239 TTTATTTA

```

**Figure 4**

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native 1 ---GGTGATGTGCAGAATGCTGTCTGAAGGGGCTATGGTCAGGGTGGCAGATACAGTGCAA
Recombinant 1 ATG.....T.....
native 58 ACTTCAGCCACAAACTCAGAGAGGGTGCCTAACTTGACAGCAGTAGAACTGGTCACACT
Recombinant 61 .....
native 118 TCGCAGGCAGTACCTGGTGATACCATGCAGACTAGACATGTGATCAACAATCACGTGAGG
Recombinant 121 .....T.....C.....
native 178 TCAGAATCTACAATTGAGAACTTCCTTGCCAGATCAGCGTGTGTTTTCTACCTAGAGTAC
Recombinant 181 .....TG.....
native 238 AAGACAGGGACCAAGAGGATTCCAATAGCTTCAACAATTGGGTGATTACAACCAGGCGA
Recombinant 241 .....G.....G.....
native 298 GTGGCTCAACTACGTAGAAAAGTGGAAATGTTTACTTACCTACGGTTTGACATGGAAATC
Recombinant 301 ....G.....T.....
native 358 ACCGTGGTCATTACAAGCTCGCAAGATCAGTCTACATCACAAAACCAGAATGCACCAGTG
Recombinant 361 .....
native 418 CTAACACACCAGATAATGTATGTACCACCAGGGGACCCATACCCGTAAGCGTGGATGAT
Recombinant 421 .....A.....
native 478 TACAGCTGGCAAACATCCACCAACCCAGTATCTTTTGGACCGAAGGGAACGCTCCGGCA
Recombinant 481 .....T.....
native 538 CGCATGTCAATTCCATTTATTAGCATAGGCAATGCGTATAGTAATTTCTACGATGGGTGG
Recombinant 541 .....A.....
native 598 TCTCACTTCTCCCAGGCTGGCGTGTATGGCTTCACTACTCTGAACAACATGGGTCAATTG
Recombinant 601 .....
native 658 TTCTTCCGGCACGTAACAAGCCCAACCCAGCCGCTATTACAAGTGTGGCGCGCATTTAC
Recombinant 661 .....
native 718 TTCAAACCGAAACATGTACGCGCTTGGGTGCCTAGACCACCGCGCTTGTGTCCATACATC
Recombinant 721 .....
native 778 AATAGCACGAATGTCAACTTTGAACCCAAGCCAGTGACTGAAGTACGTACCAACATAATA
Recombinant 781 .....
native 838 ACAACG-----
Recombinant 841 .....ATCATCGCGCCGCACAGCTGTATACAGTGCAAGCCAGCCAGAACTCGCCCCG
native
Recombinant 901 -----
GAAGACCCCGAGGATCTCGAGCACCACCATCACCATCACCATCAC

Figure 5

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Native	1	---TCTCCAACGGTTGAAGAGTGCGGGTACAGTGACAGGGTCAGGTCAATCACACTTGGG
recombinant	1	ATG.....
Native	58	AACTCCACTATTACAACCAAGAGTGTGCCAATGTGGTGGTGGGGTACGGTGAATGGCCT
recombinant	61	.....
Native	118	GAGTATCTGAGTGATAACGAGGCAACTGCTGAGGACCAACCAACGCAGCCGGACGTGGCC
recombinant	121	.....
Native	178	ACTTGCCGTTTTTACACCCTAGACTCAGTCCAATGGGAGAATGGGTCACCAGGTGGTGG
recombinant	181	.....
Native	238	TGGAAGTTTCCCAGCCTCTAAGGGATATGGGATTATTTGGCCAAAATATGTACTACCAT
recombinant	241	.....
Native	298	TACTTAGGCAGAGCCGGGTATACCATCCACGTACAATGCAATGCTTCCAAGTTTCATCAA
recombinant	301	.....
Native	358	GGCTGTATCCTGGTAGTGTGTGCCCTGAGGCGGAGATGGGAAGTGCCCAAACCTCAGGG
recombinant	361	.....
Native	418	GTGGTCAACTACGAACACATTAGTAAGGGTGAGATCGCATCAAGGTTCACTACCACGACA
recombinant	421	.....
Native	478	ACAGCAGAAGACCATGGCGTGCAGGCCGCGGTATGGAATGCTGGTATGGGCGTTGGAGTT
recombinant	481	.....
Native	538	GGGAAGTTGACGATCTTCCCGCACCAATGGATCAACCTTCGCACCAACAACAGCGCCACA
recombinant	541	.....
Native	598	ATTGTTATGCCATACGTAAATAGTGTACCAATGGACAATATGTATAGACATCACAACTTT
recombinant	601	.....
Native	658	ACACTAATGATAATACCCTTTGTGCCTCTGGATTTTCAGCGGGTGCATCCACATACGTG
recombinant	661	.....
Native	718	CCCATAACGGTGACAGTGGCCCCCATGTGTGCCGAGTACAATGGACTACGACTAGCTGGA
recombinant	721	.....
Native	778	CACCAA-----
recombinant	781	.....TAGTAG

**Figure 6**

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native	1	GGTGATGTGCAGAAATGCTGTGCGAAGGGGCTATGGTCAGGGTGGCAGATACAGTGCAAAC
Recombinant	1	-----T-----
native	61	TCAGCCACAAACTCAGAGAGGGTGCCTAACTTGACAGCAGTAGAAACTGGTCACACTTCG
Recombinant	57	-----
native	121	CAGGCAGTACCTGGTGATACCATGCAGACTAGACATGTGATCAACAATCACGTGAGGTCA
Recombinant	116	....T.....C.....
native	181	GAATCTACAATTGAGAACTTCCTTGCCAGATCAGCGTGTGTTTTCTACCTAGAGTACAAG
Recombinant	176	.....TG.....
native	241	ACAGGGACCAAAGAGGATTCCAATAGCTTCAACAATTGGGTGATTACAACCAGGCGAGTG
Recombinant	236	.....G.....G.....
native	301	GCTCAACTACGTAGAAAACCTGGAAATGTTTACTTACCTACGGTTTGACATGGAAATCACC
Recombinant	296	.G.....T.....
native	361	GTGGTCATTACAAGCTCGCAAGATCAGTCTACATCACAAAACCAGAATGCACCAGTGCTA
Recombinant	356	-----
native	421	ACACACCAGATAATGTATGTACCACCAGGGGACCATAACCCGTAAGCGTGGATGATTAC
Recombinant	416	.....A.....
native	481	AGCTGGCAAACATCCACCAACCCAGTATCTTTTGGACCGAAGGGAACGCTCCGGCACGC
Recombinant	476	.....T.....
native	541	ATGTCAATTCCATTTATTAGCATAGGCAATGCGTATAGTAATTTCTACGATGGGTGGTCT
Recombinant	536	.....A.....
native	601	CACTTCTCCCAGGCTGGCGTGTATGGCTTCACTACTCTGAACAACATGGGTCAATTGTTC
Recombinant	596	-----
native	661	TTCCGGCACGTAAACAAGCCCAACCCAGCCGCTATTACAAGTGTGGCGCGCATTACTTC
Recombinant	656	-----
native	721	AAACCGAAACATGTACGCGCTTGGGTGCCTAGACCACCGCGCTTGTGTCCATACATCAAT
Recombinant	716	-----
native	781	AGCACGAATGTCAACTTTGAACCCAAGCCAGTGACTGAAGTACGTACCAACATAATAACA
Recombinant	776	-----
native	841	ACG-----
Recombinant	836	...ATCATCGCGGCCGCACAGCTGTATACACGTGCAAGCCAGCCAGAACTCGCCCCGGAA
native		-----
Recombinant	896	GACCCCGAGGATCTCGAGCACCACCATCACCATCACCATCAC

**Figure 7**

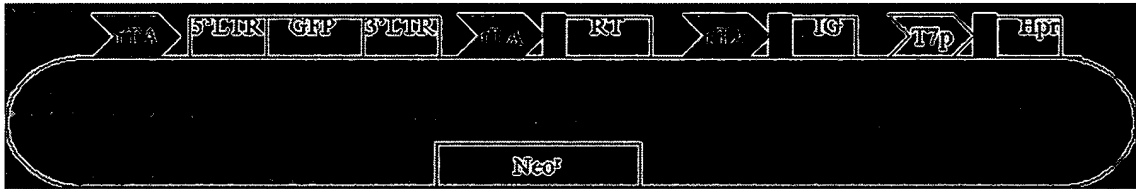
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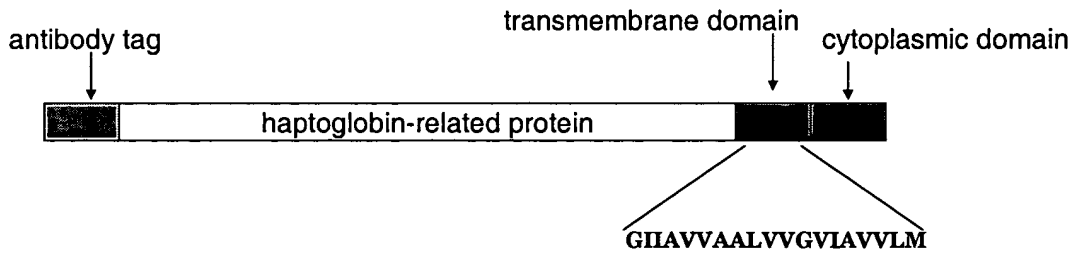
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Native	1	ATGGGAGCACAGGTATCAACACAGAAGACCGGGGCGCACGAGACTAGCTTGAGCGCTACT
Recombinant	1	....CGAT.TC.....
Native	61	GGCAACTCCATAATACACTACACGAATATTAATTATTACAAAGATGCAGCCTCTAACTCT
Recombinant	61	.....C.....
Native	121	GCCAATAGACAAGATTTACCCCAAGACCCTGGTAAGTTTACTGAACCAATGAAAGATGTC
Recombinant	121	.....C..G.....
Native		181 ATGATAAAAACCCTGCCAGCGCTGAAT-----
Recombinant	181	.....TCGTAG

**Figure 8**



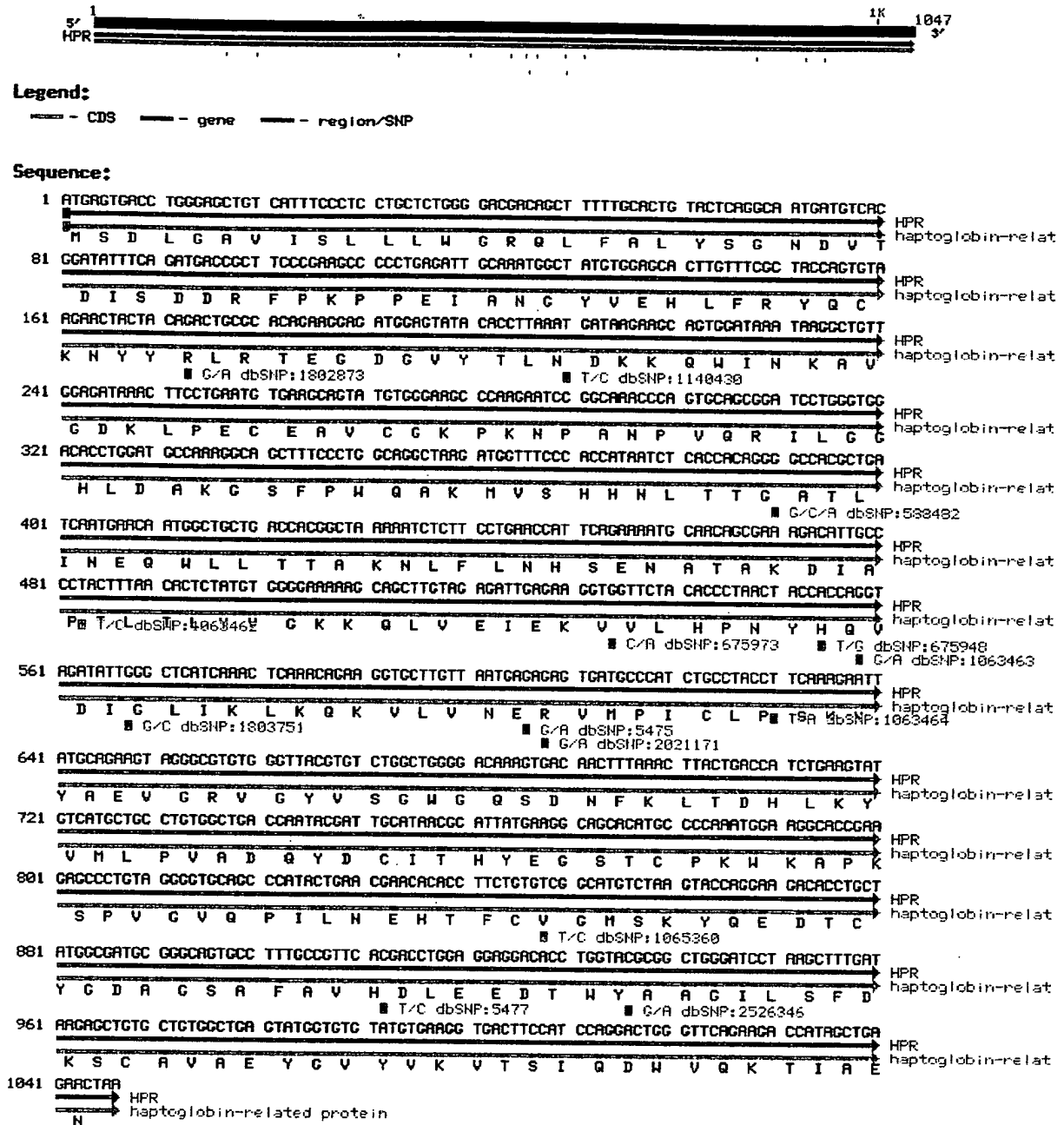
**Figure 9**



**Figure 10**

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**Figure 11**





**Legend:**

--- CDS --- gene --- region/SNP

**Sequence:**

1 ATGACTGACC TGGAGCTGT GATTTCCCTC CTGCTCTGGG GAGGAGCCT TTTTCCACTG TACTGAGGCA ATGATGTGAC HFR  
 N S D L G A V I S L L L W G R Q L F A L Y S C H D U T haploglobin-relat

81 GATATTTCA GATGACCCCT TCCGAGGCC CCTCAGATT CCAATGCCCT ATCTGAGCA CTGCTTTCCG TACCACTGTA HFR  
 D I S D D R F P K P P E I A H C Y V E H L F R Y Q C haploglobin-relat

161 ACACACTA CACACTCCG ACACAGGAG ATCCACTATA CACCTTAAAT GATACAGCC AGTCGATTA TACCCCTGTT HFR  
 K H V V R L R T E G D G V Y T L N D K K G W I N K A V haploglobin-relat  
 B C/A dbSNP:1882873 B T/C dbSNP:1148439

241 GGATTAAC TTCTGATC TGACCACTA TCTGGAGCC CCAATATCC GCGAGCCCA CTCACCCGA TCCTCCCTCC HFR  
 G D K L P E C E A V C G K P K H P A H P V Q R I L G C haploglobin-relat

321 ACACCTGAT CCGAGCCCA GCTTTCCCTG CAGCCCTAGC ATGCTTTCCG ACCATAATCT CACACACCC GCGACCTGTA HFR  
 H L D A K G S F P H Q A K H V S H H N L T T C A T L haploglobin-relat  
 B C/A dbSNP:588482

481 TCATGAGCA ATGCTCTG ACACCCCTA AATATCTCTT CCTGACCAT TCAGATATG CACACCCGA AGCATTGCC HFR  
 I H E Q W L L T T A K H L F L M H S E N A T A K D I A haploglobin-relat

491 CCTACTTAA CACTCTATCT GCGGAAAG CACTCTTAGC ACATTGAGA CCTGCTTCTA CACCTTACT ACCACCTCT HFR  
 P A T/C dbSNP:1063462 C K K Q L V E I E K V V L H P N V H Q V haploglobin-relat  
 B C/A dbSNP:575973 B T/C dbSNP:675948 B C/A dbSNP:1063463

561 ACATATGCC CTGATCAAC TCACACAGA CCTCCTTCTT ATGACAGC TCATGCCAT CTGCTACTCT TCACAGATT HFR  
 D I G L I K L K Q K V L V N E R V H P I C L P A I S A S bSNP:1063464 haploglobin-relat  
 B C/C dbSNP:1883751 B C/A dbSNP:5475 B C/A dbSNP:2021171

641 ATCCGACT AGCCCTCTC GATTCCTGT CTGCTCCGC ACAAGTGC ACTTTAATC TTAGTACCA TCTGAGTAT HFR  
 Y A E V G R V C Y V S G W G Q S D N F K L T D H L K Y haploglobin-relat

721 CTCATCTGC CTGCTCCGA CCAATACGAT TCCATACGC ATTATGAGG CACGACATCC CCCAATGCA AGCCCCGAA HFR  
 V H L P V A D Q Y D C I T H Y E C S T C P K W K R P haploglobin-relat

881 GACCCCTGA GGCCTGACC CCACTAGCA CACACACCC TTCTCTGCG CCACTGCTTA CTACACGAA GACACTGCT HFR  
 S P U C V Q P I L N E H T F C V C H S K Y Q E D T C haploglobin-relat  
 B T/C dbSNP:1965368

881 ATGCCATGC GGCAGTCC TTGCCCTC ACACCTGCA GAGGACACC TGGTACCCG CTGCACTCT AACTTTGAT HFR  
 Y C D A G S A F A V H D L E E D T H V A R C I L S F D haploglobin-relat  
 B T/C dbSNP:5477 B C/A dbSNP:2526345

961 AAGCCTCTC CTGCTCCGA GATCTCTC TATCTGAGC TGACTTCCAT CCAAGCTCC GTTACAGCA CCAATCTGA HFR  
 K S C A V A E Y G V Y V K V T S I Q D H V Q K T I A E haploglobin-relat

1041 GACTTA HFR  
 N haploglobin-related protein

Figure 11